iCMM version 2.0 – Frequently Asked Questions (FAQ Sheet)

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Why did we develop iCMM v2.0?

- ***Maintenance Change Requests:*** iCMM v2.0 addresses changes identified and requested by stakeholders; typically these resulted in improved clarity in areas that were sometimes misinterpreted or difficult to implement in v1.0.
- ***Enhancement Change Requests:*** iCMM v2.0 extends improvement guidance across more business and technical activities that the FAA performs such as strategic planning, deployment, and operations.
- ***Currency:*** iCMM v2.0 updates improvement guidance for the disciplines already included in iCMM v1.0, making the content more current.
- ***One-model concept:*** iCMM v2.0 integrates several popular organizational improvement approaches into one model to dispel confusion when considering various approaches. One model combines the common and best features of them all.

What is the scope of iCMM v2.0?

The scope of the model has broadened to include more of the business and life cycle processes performed across an enterprise.

- ***Enterprise scope:*** iCMM v2.0 provides best practice guidance on processes used by an enterprise or organization that engages in the acquisition, supply, engineering, development, operation, evolution, support, and management of products and services.
- ***Discipline scope:*** It integrates software engineering, systems engineering, acquisition, and integrated process and product development (IPPD) disciplines, and includes leadership and strategic processes to assure alignment of projects and activities with enterprise vision, mission, goals, and objectives
- ***Life cycle scope:*** iCMM v2.0 covers the complete product or service life cycle

iCMM v2.0 provides best practice guidance for use in improving these processes and in measuring their capability, value, and effectiveness.

But the scope of v1.0 was just fine for my purposes.

As always, if process areas are not applicable to your business, they are not applicable!! If they do not contribute to your improvement priorities, they should not be selected for improvement.

Besides the general change in scope, how is v2.0 different from v1.0?

- ***Process Areas:*** There are 23 process areas (PAs) in iCMM v2.0, just as there were in iCMM v1.0. However, some are new, some are renamed, some are different, and some process areas from v1.0 were integrated into other process areas. All process areas are described in terms of products and services, rather than systems, to clarify the broad applicability of the model.
    - *Three new process areas*: These are PA 00 Integrated Enterprise Management, PA 17 Information Management, and PA 10 Operation and Support.

- *One extended process area*: Transition (in v1.0) was extended to include Deployment, Transition, and Disposal (PA 09).
- *Three v1.0 process areas integrated into others*: Peer Review was integrated into PA 08 Evaluation; Prevention was integrated into PA 15 Quality Assurance and Management; Product Evolution was integrated into both PA 23 Innovation, and PA 00 Integrated Enterprise Management.
- *Nine process areas were renamed to better reflect revised content:*

Version 2.0 PA Title	Version 1.0 PA Title
PA 03 Design	PA 03 Architecture
PA 04 Alternatives Analysis	PA 04 Alternatives
PA 06 Design Implementation	PA 06 Software Development and Maintenance
PA 08 Evaluation	PA 08 System Test and Evaluation
PA 12 Supplier Agreement Management	PA 12 Contract Management
PA 14 Integrated Teaming	PA 14 Coordination
PA 18 Measurement and Analysis	PA 18 Measurement
PA 20 Process Definition	PA 20 Organization Process Definition
PA 21 Process Improvement	PA 21 Organization Process Improvement

- ***Base Practices***:
  - Some content has been rearranged among process areas, and within practices, to improve clarity.
  - Some additional practices and practice guidance have been included from integration of additional standards and models.

- ***Staging***: The CMM staging (for benchmarking with existing capability maturity models) has been adjusted to reflect current CMM maturity level (ML) staging. The changes are:
  - PA 18 Measurement and Analysis is staged at ML2 (this was at ML4).
  - PA 21 Process Improvement is staged at ML3 (this was at ML5).
  - PA 01 Needs is staged at ML3 (this was at ML2).
  - PA 00 Integrated Enterprise Management is staged at ML3 (this is a new process area).

  PA 09 Deployment, Transition, and Disposal is staged at ML2, as was the Transition PA of version 1.0, but the new PA includes deployment and disposal.

- ***Capability Levels and Generic Practices***: Some practices have been reworded and in addition:
  - *Capability Level 0* (Incomplete process): This level was introduced for consistency with other continuous models and standards.
  - *Capability Level 1*: There is one new generic practice: "Identify Work Scope".
  - *Capability Level 2*: There is one new generic practice: "Establish Work Product Requirements".
  - *Capability Level 3*: There is one new generic practice: "Improve Processes"; two previous practices were integrated into others ("Perform Review with Peers" into

"Objectively Verify Work Products" at capability level 2; "Coordinate with Affected Groups" into "Coordinate with Stakeholders" at capability level 2).
  - *Capability Level 4*: A single generic practice captures all previous level 4 generic practices.
  - *Capability Level 5*: A single generic practice focuses on pursuing process optimization using statistical process control.

- ***Generic Attributes***: This is a new feature in iCMM v2.0. It offers a way of measuring process performance results (usefulness of work products, resource efficiency, and cost effectiveness). It can be used selectively during an appraisal as determined by the appraisal sponsor.

Could you summarize the 23 process areas in the iCMM V2.0?

Here are the 23 process areas and their purpose statements. Their maturity level stagings are indicated following each PA title. Note that two PAs are not staged since their content is not included in any CMM benchmark levels.

- ***Management Processes*** The 5 management processes are used to set vision, goals, strategy, and direction. Management processes initiate, plan and track activities that will accomplish the objectives of the enterprise, organization, or project. They oversee the execution of the other processes in the model.

  PA00 Integrated Enterprise Management (3) - to establish the vision, mission, values, goals, and objectives of the enterprise; establish and maintain strategic plans to accomplish goals and objectives; initiate and monitor projects/activities to advance the business of the enterprise; evaluate performance relative to goals and needs; and enable individuals to function effectively by sharing a common understanding of enterprise vision, culture, and goals.

  PA11 Project Management (2) - to ensure the project achieves its objectives, by planning, directing, tracking, and controlling the activities necessary for development and delivery of required products and services.

  PA12 Supplier Agreement Management (2) - to ensure that the activities described in agreements are being performed, and that evolving products and services will satisfy requirements described in agreements.

  PA13 Risk Management (3) - to identify and analyze risks to the achievement of project objectives and execute plans that reduce the likelihood and/or consequence of risks that meet mitigation criteria.

  PA14 Integrated Teaming (3) - to identify and maintain the disciplines and stakeholders necessary to effectively accomplish appropriate multidisciplinary/cross-functional missions, to create integrated teams as appropriate, and to establish and maintain a supportive teaming environment.

- ***Life Cycle Processes:*** The 8 life cycle processes are used to develop, maintain, transition, and operate a product or service in order to provide and sustain the services that a customer or stakeholder needs.

  PA01 Needs (3) - to elicit, analyze, clarify, and document evolving customer and other stakeholder needs and expectations, and to establish and maintain communication with the customer and other stakeholders throughout the life cycle to assure a continuous understanding of what will satisfy those needs.

  PA02 Requirements (2) - to develop requirements that meet the customer's need; analyze the product, service and other requirements; derive a detailed and precise set of requirements; and manage those requirements throughout the life cycle.

  PA03 Design (3) - to establish and maintain an architecture and design solution for the needs and requirements of the customer and other stakeholders.

  PA06 Design Implementation (3) - to produce a specified solution component.

PA07 Integration (3) - to ensure that product and service elements will function as a whole.
PA08 Evaluation (2) - to confirm that developed and acquired products and services satisfy specified requirements and operational needs, and identify and document actual and potential defects in evolving product and service elements.
PA09 Deployment, Transition, and Disposal (2) – to place a product or service into an operational environment, transfer it to the customer/stakeholder, and support organization, and deactivate and dispose of the replaced product and /or dispense with the service.
PA10 Operation and Support (not staged) - to operate the product, system or service, support its users, monitor and sustain its performance, and take or initiate corrective action as required.

- ***Support Processes*** The 10 support processes are used by other process areas when needed, and contribute to the success and quality of the other processes.

  PA04 Alternatives Analysis (3) - to apply structured analysis and decision-making to selected issues and communicate the results to stakeholders.
  PA05 Outsourcing (2) - to identify the portions of the solution and support structure that are to be provided from outside the organization, identify potential sources, and select the supplier for the needed capability.
  PA15 Quality Assurance and Management (2) - to ensure the quality of the product or service, ensure the quality of the processes used to create or provide the product or service, and provide management with appropriate visibility into the processes and product.
  PA16 Configuration Management (2) - to establish and maintain data on and status of identified configuration items, analyze and control changes to the identified items, and to establish and maintain the integrity between the identified work products and their data throughout the project's life cycle.
  PA17 Information Management (not staged) - to make relevant and timely information available to those who need it during and after the lifetime of products and services.
  PA18 Measurement and Analysis (2) - to collect and analyze data related to processes and resulting products and services to provide quantitative insight into performance relative to goals.
  PA20 Process Definition (3) - to define and maintain a standard set of process assets that support organizational learning and improve process performance.
  PA21 Process Improvement (3) - to continuously improve the effectiveness and efficiency of the project and/or organization's processes so that its business is conducted more efficiently and effectively.
  PA22 Training (3) - to develop and maintain the skills and knowledge of people so they perform their roles effectively and efficiently.
  PA23 Innovation (5) - to identify, select, and introduce selected technology improvements into products, processes, and the work environment to improve the organization's business results.

Could you list the capability levels, goals, and generic practices of version 2.0?

Level 0: Incomplete	(No goal or generic practices at this level)
Level 1: Performed	**The process achieves the goals of the process area.**
1.1 Identify Work Scope	1.2 Perform the process
Level 2: Managed: Planned and Tracked	**The process is institutionalized as a managed (planned and tracked) process.**
2.1 Establish organizational policy	2.9 Manage work products
2.2 Document the process	2.10 Objectively assess process compliance
2.3 Plan the process	2.11 Objectively verify work products
2.4 Provide adequate resources	2.12 Measure process performance
2.5 Assign responsibility	2.13 Review performance with higher-level management
2.6 Ensure skill and knowledge	2.14 Take corrective action
2.7 Establish work product requirements	2.15 Coordinate with participants and stakeholders
2.8 Consistently use and manage the process	

Level 3: Defined	**The process is institutionalized as a defined process.**
3.1 Standardize the process 3.2 Establish and use a defined process	3.3 Improve processes
Level 4: Quantitatively Managed	**The process is institutionalized as a quantitatively managed process**
4.1 Stabilize process performance	
Level 5: Optimizing	**The process is institutionalized as an optimizing process.**
5.1 Pursue process optimization	

What models and standards have been used in developing iCMM v2.0?

The iCMM v2.0 incorporates material from the latest versions of standards, models, and documents that deal with:

- ***Organizational excellence*:** President's Quality Award/ Malcolm Baldrige National Quality Award criteria.
- ***Quality management*:** ISO9001, ISO9004
- ***Systems engineering*:** EIA/IS 731, ISO/IEC CD 15288, EIA-632, CMMI-SE
- ***Software engineering*:** ISO/IEC TR 15504, ISO/IEC 12207, CMMI-SW
- ***Acquisition*:** SA-CMM v1.02, CMMI-A
- ***Integrated product development*:** CMMI-IPPD, IPD-CMM v 0.98

Of course the baseline model for developing iCMM v2.0 is iCMM v1.0, which already includes:

- ***Systems engineering*:** SE-CMM v1.0
- ***Software engineering*:** SW-CMM v1.0
- ***Acquisition:*** SA-CMM v1.01

Thus the iCMM v2.0 brings together guidance from all of these different models and standards.

Why didn't we include the People CMM?

Some parts of the People-CMM (P-CMM) are included in the iCMM v2.0, in particular in the Training, and Integrated Teaming PAs. However, those parts of human resource management dealing activities such as staff recruitment, evaluation, retention, and staff records have not been included in the scope of iCMM v2.0.

Human resource management can be included in the iCMM. There had not been a request to do so at this time, but this can be brought before the iPG and the iPG CCB. (The P-CMM is summarized at the end of this document)

Could you tell me a bit about all these models and standards?

A very brief description of major models, standards, and source documents is provided below. Then high-level components of the major sources are listed at the end of this document.

1. Organizational Excellence Models:

1.1 President's Quality Award (PQA) and Malcolm Baldrige National Quality Award (MBNQA) Criteria 2000

- Focuses on overall organizational performance and business results
- Based on characteristics found among the most excellent performing organizations
- Scoring system assesses performance in delivering continuous value to customers
- Structure: 7 categories, 19 items
- Key Features
  - Concerned with business results - customer focused, financial performance, human resources, supplier and partner, organizational effectiveness
  - Non-prescriptive - specific approaches, measures, tools, technologies not described
  - Adaptable - to organizations of different type, size, strategy, stage of development
  - Organization-wide goal alignment - connecting and reinforcing measures derived from vision and strategy and linked to customer value and overall performance

2. Quality Management Systems: ISO 9000

2.1 ISO 9001:2000 Quality Management Systems - Requirements

- Focuses on quality *(fulfillment of requirements)*
- Specifies requirements for a *quality management system* where an organization
  - needs to demonstrate ability to provide products that meet requirements
  - aims to enhance customer satisfaction
- Intended to be generic, applicable to all organizations
- Can result in certification or registration
- Structure: 5 major clauses, 23 subclauses
- ***ISO 9004:2000*** provides guidelines beyond ISO9001 for organizations in pursuit of continual improvement of performance (not for certification purposes)

3. Systems Engineering Models and Standards

3.1 Systems Engineering Capability EIA/IS 731 v1.0 (Interim Standard)

- Purpose: to support the development and improvement of systems engineering capability
- Practices: contains practices from systems engineering standards plus industry-wide best practices
- Improvement: basis for determining how well processes are defined and implemented; supports process improvement and process design; includes appraisal method
- Applicable: to any programs and organizations doing systems engineering
- Integrates 2 systems engineering models: SE-CMM and SECAM
- Structure: Process: 3 categories, 19 Focus Areas, Themes, specific practices; 6 Capability levels; generic practices, generic attributes

3.2 System Engineering - System Life Cycle Processes ISO/IEC CD 15288 CD 3

- Purpose: establish a common framework for describing the life cycle of systems created by humans and a set of well-defined processes and associated terminology; provide processes that support definition, control, and improvement of life cycle processes; help develop agreement on processes and activities when acquiring and supplying systems
- Applicability: full life cycle of any system
- Structure: 4 process groups, 24 processes

3.3 Processes for Engineering a System - EIA 632

- Purpose: to provide an integrated set of fundamental processes to aid a developer in the engineering or reengineering of a system
- Contents: provides requirements for processes (what to do), but does not describe "how to" implement those requirements nor determine "how well" they are performed
- Applicability: to any product development, for the engineering or reengineering of a product or system

4. Software Engineering Models and Standards

4.1 ISO/IEC TR 15504 Software Process Assessment (SPICE)

- Purpose: provide a framework for assessment of software processes
- Usage: to plan, manage, monitor, control, and improve the acquisition, supply, development, operation, evolution and support of software
- Contents: model of universal processes and best practices fundamental to good software engineering, attributes that characterize the process capability, assessment requirements, guidance documents
- Structure: 9 Parts in the Standard; Reference model has 3 life cycle process groupings, 5 process categories, 24 basic processes, 16 additional component processes, base practices; 6 capability levels, management practices (process attributes)

NOTE: *Our process improvement model is adapted from 15504 Part 7: Guide for Use in Process Improvement.*

4.2 ISO/IEC 12207: Software life cycle processes

- Purpose: establish a common framework for software life cycle processes, with well-defined terminology
- Contents: processes, activities, tasks applied during the acquisition of a system that contains software, a stand-alone product, and software service and during the supply, development, operation, and maintenance of software products
- Usage: intended for use in a two-party situation, may be from same organization, ranging from informal agreement to legally binding contract
- Structure: 17 processes: 5 primary, 8 supporting, 4 organizational

5. Capability Maturity Models - General

- Content and purpose: CMMs are collections of lessons learned that organizations adopt to improve the way they do their business. They provide guidance regarding:

- What we do: CMMs describe essential best practices that are generally observed to be effective in industry and government
- How well we do it: CMMs describe a path for continually improving quality and effectiveness. This guidance is described by capability levels or maturity levels.

- CMM Usage: Organizations use CMMs to compare their actual practice against essential best practices, and to improve their business performance. CMM-adopting organizations report significant increases in staff morale, ability to meet schedule, productivity, product quality, and customer satisfaction.
- There are discipline specific CMMs (e.g., SW-CMM, SA-CMM, SE-CMM, IPD-CMM, P-CMM) and there are integrated CMMs (e.g. FAA-iCMM and CMMI)

5.1 The FAA-iCMM v1.0

- Purpose: The iCMM is an *integrated* Capability Maturity Model developed by the FAA to guide the improvement of systems engineering, software engineering and system acquisition processes in an integrated way. iCMM version 1.0 was released in Nov. 1997.
- Source Models: The iCMM v1.0 integrates the CMMs for Software, Systems Engineering, and Software Acquisition and thus provides best practice guidance regarding management, engineering, and acquisition
- Appraisal: Associated with the iCMM is an appraisal method used to measure process capability, and identify strengths and areas for improvement
- Structure: 4 categories, 23 process areas, base practices; capability levels, generic practices; maturity levels.

5.2 CMMI: CMM Integration – various versions and disciplines

- Purpose: The CMM Integration project was formed to address the problem of having to use multiple Capability Maturity Models. CMMI-SE/SW/IPPD v1.02 was released in Nov. 2000, and a draft acquisition extension is available for piloting.
- Source Models: The initial mission of the project was to combine three source models: CMM for Software (SW-CMM) v2.0 draft C, EIA/IS 731, and Integrated Product Development CMM (IPD-CMM) v0.98.
- Appraisal: A standard CMMI appraisal method should be released by early 2002.
- Sponsors: The Office of the Under Secretary of Defense, Acquisition, Technology, and Logistics (OUSD/AT&L) and the Systems Engineering Committee of the National Defense Industrial Association (NDIA) jointly sponsor CMMI project work.
- Structure: 6 categories, 27 process areas (including 3 draft acquisition PAs); continuous version has capability levels; staged version has maturity levels

High Level Content of Standards and Models contributing to iCMM v2.0

ISO 9001:2000	*EIA/IS 731*	*President's Quality Award/Malcolm Baldrige*
Section 4 – Quality management system 4.1 General requirements 4.2 General documentation requirements **Section 5 - Management responsibility** 5.1 Management commitment 5.2 Customer focus 5.3 Quality policy 5.4 Planning 5.5 Administration 5.6 Management review **Section 6 - Resource management** 6.1 Provision of resources 6.2 Human resources 6.3 Facilities 6.4 Work environment **Section 7 - Product realization** 7.1 Planning of realization processes 7.2 Customer-related processes 7.3 Design and/or development 7.4 Purchasing 7.5 Production and service operations 7.6 Control of measuring and monitoring devices **Section 8 - Measurement, analysis and improvement** 8.1 Planning 8.2 Measurement and monitoring 8.3 Control of nonconformity 8.4 Analysis of data 8.5 Improvement	**TC 1.0 Systems Engineering Technical Category** FA 1.1 Define Stakeholder and System Level Requirements FA 1.2 Define Technical Problem FA 1.3 Define Solution FA 1.4 Assess and Select FA 1.5 Integrate System FA 1.6 Verify System FA 1.7 Validate System **TC 2.0 Systems Engineering Management Category** FA 2.1 Plan and Organize FA 2.2 Monitor and Control FA 2.3 Integrate Disciplines FA 2.4 Coordinate with Suppliers FA 2.5 Manage Risk FA 2.6 Manage Data FA 2.7 Manage Configurations FA 2.8 Ensure Quality **TC 3.0 Systems Engineering Environment Category** FA 3.1 Define and Improve the Systems Engineering Process FA 3.2 Manage Competency FA 3.3 Manage Technology FA 3.4 Manage Systems Engineering Support Environment	**1. Leadership** 1.1 Organizational Leadership Public Responsibility and Citizenship 2. **Strategic Planning** 2.1 Strategic Development 2.2 Strategy Deployment 3. **Customer and Market Focus** 3.1 Customer and Market Knowledge 3.2 Customer Satisfaction and Relationships 4. **Information and Analysis** 4.1 Measurement of Organizational Performance 4.2 Analysis of Organizational Performance 5 **Human Resource Focus** 5.1 Work Systems 5.2 Employee Education, Training, and Development 5.3 Employee Well Being & Satisfaction 6. **Process Management** 6.1 Product and Service Processes 6.2 Support Processes 6.3 Supplier and Partnering Processes **7. Business Results** 7.1 Customer Focused Results 7.2 Financial and Market Results 7.3 Human Resource Results 7.4 Supplier and Partner Results 7.5 Organizational Effectiveness Results

High Level Content of Standards and Models contributing to iCMM v2.0

CMMI – SE/SE/IPPD/A	*ISO/IEC CD 15288*	*ISO/IEC TR 15504*
Process Management Processes. • Organizational Process Focus • Organizational Process Definition • Organizational Training • Organizational Process Performance • Organizational Innovation and Deployment **Project Management Processes** • Project Planning • Project Monitoring and Control • Supplier Agreement Management • Integrated Project Management • Risk Management • Quantitative Project Management **Engineering Processes** • Requirements Development • Requirements Management • Technical Solution • Product Integration • Verification • Validation **Support Processes** • Configuration Management • Process and Product Quality Assurance • Measurement and Analysis • Decision Analysis and Resolution • Causal Analysis and Resolution **Integration (IPPD)** • Integrated Teaming • Organizational Environment for Integration **Acquisition (draft)** • Supplier Selection and Monitoring • Integrated Supplier Management • Quantitative Supplier Management	**Agreement** • Acquisition • Supply **Enterprise** • Enterprise Environment Management • Investment Management • System Life Cycle Processes Management • Resource Management **Project** • Project Planning • Project Assessment • Project Control • Decision Making • Risk Management • Configuration Management • Information Management **Technical** • Stakeholder Requirements Definition • Requirements Analysis • Architectural Design • Implementation • Integration • Verification • Transition • Validation • Operation • Maintenance • Disposal	**Primary Life Cycle processes** *CUS Customer Supplier process category* CUS.1 Acquisition CUS.1.1 Acquisition preparation CUS.1.2 Supplier selection CUS.1.3 Supplier Monitoring CUS.1.4 Customer Acceptance CUS.2 Supply CUS.3 Requirements Elicitation CUS.4 Operation CUS.4.1 Operational use CUS.4.2 Customer support *ENG Engineering process category* ENG.1 Development ENG.1.1 System requirements analysis and design ENG.1.2 Software requiremts analysis ENG.1.3 Software design ENG.1.4 Software construction ENG.1.5 Software integration ENG.1.6 Software testing ENG.1.7 System integration and testing ENG.2 System and software maintenance **Supporting Life Cycle processes** *SUP Support process category* SUP.1 Documentation SUP.2 Configuration management SUP.3 Quality assurance SUP.4 Verification SUP.5 Validation SUP.6 Joint review SUP.7 Audit SUP.8 Problem resolution **Organizational Life Cycle processes** *MAN Management process category* MAN.1 Management MAN.2 Project management MAN.3 Quality Management MAN.4 Risk Management *ORG Organization process category* ORG.1 Organizational alignment ORG.2 Improvement process ORG.2.1 Process establishment ORG.2.2 Process assessment ORG.2.3 Process improvement ORG.3 Human resource management ORG.4 Infrastructure ORG.5 Measurement ORG.6 Reuse

High Level Content of Standards and Models contributing to iCMM v2.0

ISO/IEC 12207	*FAA-iCMM version 1.0*
5. PRIMARY LIFE CYCLE PROCESSES 5.1 Acquisition 5.2 Supply 5.3 Development 5.4 Operation 5.5 Maintenance **6. SUPPORTING LIFE CYCLE PROCESSES** 6.1 Documentation 6.2 Configuration Management 6.3 Quality Assurance 6.4 Verification 6.5 Validation 6.6 Joint Review 6.7 Audit 6.8 Problem Resolution **7. ORGANIZATIONAL LIFE CYCLE PROCESSES** 7.1 Management 7.2 Infrastructure 7.3 Improvement 7.4 Training	**Life Cycle or Engineering Processes** PA 01: Needs PA 02: Requirements PA 03: Architecture PA 04: Alternatives PA 05: Outsourcing PA 06: Software development and maintenance PA 07: Integration PA 08: System Test and Evaluation PA 09: Transition PA 10: Product Evolution **Management or Project Processes** PA 11: Project Management PA 12: Contract Management PA 13: Risk Management PA 14: Coordination **Supporting Processes** PA 15: Quality Assurance and Management PA 16: Configuration Management PA 17: Peer Review PA 18: Measurement PA 19: Prevention **Organizational Processes** PA 20: Organization Process Definition PA 21: Organization Process Improvement PA 22: Training PA 23: Innovation

Summary of P-CMM: People Capability Maturity Model, Version 2, Draft

The People Capability Maturity Model® (P-CMM®) adapts the maturity framework of the Capability Maturity Model® for Software (CMM®) to managing and developing an organization's work force. The motivation for the P-CMM is to radically improve the ability of software organizations to attract, develop, motivate, organize, and retain the talent needed to continuously improve software development capability. The P-CMM is designed to allow software organizations to integrate work-force improvement with software process improvement programs guided by the SW-CMM. The P-CMM can also be used by any kind of organization as a guide for improving their people-related and work-force practices.

Based on the best current practices in the fields such as human resources and organizational development, the P-CMM provides organizations with guidance on how to gain control of their processes for managing and developing their work force. The P-CMM helps organizations to characterize the maturity of their work force practices, guide a program of continuous work-force development, set priorities for immediate actions, integrate work-force development with process improvement, and establish a culture of software engineering excellence. It describes an evolutionary improvement path from ad hoc, inconsistently performed practices, to a mature, disciplined development of the knowledge, skills, and motivation of the work force, just as the CMM describes an evolutionary improvement path for the software processes within an organization.

The P-CMM consists of five maturity levels that lay successive foundations for continuously improving talent, developing effective teams, and successfully managing the people assets of the organization. Each maturity level is a well-defined evolutionary plateau that institutionalizes a level of capability for developing the talent within the organization.

The five maturity levels of the P-CMM are:
1) Initial.
2) Repeatable. The key process areas at Level 2 focus on instilling basic discipline into workforce activities. They are:

- Work Environment
- Communication
- Staffing
- Performance Management
- Training
- Compensation

3) Defined. The key process areas at Level 3 address issues surrounding the identification of the organization's primary competencies and aligning its people management activities with them. They are:

- Knowledge and Skills Analysis
- Workforce Planning
- Competency Development
- Career Development
- Competency-Based Practices
- Participatory Culture

4) Managed. The key process areas at Level 4 focus on quantitatively managing organizational growth in people management capabilities and in establishing competency-based teams. They are:

- Mentoring
- Team Building
- Team-Based Practices
- Organizational Competency Management
- Organizational Performance Alignment

5) Optimizing. The key process areas at Level 5 cover the issues that address continuous improvement of methods for developing competency, at both the organizational and the individual level. They are:

- Personal Competency Development
- Coaching
- Continuous Workforce Innovation